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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,972	01/20/2004	Christopher P. Henze	N07.12-0007	4618

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EXAMINER

PHILOGENE, HAISSA

ART UNIT PAPER NUMBER

2828

DATE MAILED: 04/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/760,972

Applicant(s)

HENZE, CHRISTOPHER P.

Examiner

Haissa Philogene

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20-26 is/are allowed.
- 6) ☒ Claim(s) 1-19, 27-30 and 33 is/are rejected.
- 7) ☒ Claim(s) 31 and 32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/20/04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 29 and 30 are objected to because of the following informalities: In page 36, line 24, change numerals "29" to -31—and "25" to -27-- . In page 37, line 1, change numerals "30" to -32—and "29" to -31—and in line 6, change numeral "31" to -33-- . Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-18, 27-30 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henze et al., Patent No. 5,803,215, in view of Okamoto et al., Patent No. 6,445,137.

As per claims 1, 17 and 33, Henze discloses in Fig.1 a multiple discharge load electronic ballast system, comprising: a utility interface (12) comprising a utility input (14), a direct current (DC) distribution output via power source converter (22), which has a nominal distribution power rating; a distribution bus (16), operatively coupled the DC distribution output; and a plurality of electronic ballasts or power converter (see Col.10, lines 9-15 and also Col.1, lines 29-33) each within each vehicle connection station (18), operatively coupled the distribution bus (16), wherein a respective electronic ballast comprises adaptation for an alternating current (AC) end output via DC/AC inverter

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(see Col.10, lines 9-15 and also Col.1, lines 29-33) and has a maximum ballast power rating AC end output (as shown in Fig.1), wherein a sum of the maximum ballast power ratings of the plurality electronic ballasts is greater than the nominal distribution power rating of the utility interface or distribution bus at the output of utility interface (see Col.4, lines 23-25 and 38-40 and Col.6, lines 60-64). Henze does not explicitly disclose adaptation for DC voltage control or DC/DC step down converter. Okamoto discloses in Fig.3 a multiple discharge load electronic ballast system having a DC/DC step-down converter in stage M adapted for DC voltage control, i.e., capable of increasing or decreasing the output direct current power supply voltage provided to a light source unit (25) containing a plurality of electronic ballasts. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to incorporate the DC/DC converter for DC voltage control as taught by Okamoto into the Henze type system, because it would ensure a control of the operation of the variable DC voltage, thereby controlling the stability of the output direct current source voltage, thus improving the efficacy of the system.

As per claim 27, Henze discloses a method of providing electrical power multiple discharge loads, comprising the steps of: converting via utility interface (22) electrical power from utility source (14) to a DC distribution output, having nominal distribution power; distributing via distribution bus (16) the DC distribution output to plurality of electronic ballasts or power converters 54 contained in a plurality of connecting stations (18), each which has maximum ballast power rating, wherein the nominal distribution power is less than sum of the maximum ballast power ratings (see Col.4, lines 23-25

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and 38-40 and Col.6, lines 60-64); receiving the DC distribution output at each electronic ballast (54) (see Col.10, lines 9-15 and also Col.1, lines 29-33) each within each vehicle connection station (18), responsively generating a respective AC ballast output having a voltage and current for charging a discharge load (battery 56); and providing each of the discharge loads (56) with one of the AC ballast outputs. Henze does not disclose the respective ballast with output having voltage and current sufficient for igniting and operating a discharge load. Okamoto discloses a method of providing electrical power multiple discharge loads, comprising a step of receiving via a light source unit 25 DC distribution output (1) from stage M at each electronic ballast (S, S1, S2) which generates a respective AC output having voltage and current sufficient for igniting and operating a discharge load (B, B1, B2). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to employ the electronic ballasts for igniting and operating discharge loads as taught by Okamoto into the Henze type system. This can be done by replacing the Henze's discharge load electronic ballasts with the Okamoto's discharge load electronic ballasts. Thus, it would allow a system that can go from the unlighted state to the lighted state to prolong the discharge lamp (load) service life, thereby improving the efficacy of the system.

As per claims 2, 3, 28 and 29, Henze in view of Okamoto discloses the claimed invention substantially as explained above. Further, Henze discloses the sum of the maximum ballast power ratings being greater than the nominal distribution power rating by at least 25 percent (see Col.2, lines 14-16 and 19-21).

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As per claims 4-6, Henze in view of Okamoto discloses the claimed invention substantially as explained above. In addition, Okamoto discloses the adaptation for DC voltage control (M) of the electronic ballast having an adjustable DC/DC converter for providing a local DC voltage (1), said local DC voltage capable of being increased or decreased by increasing or decreasing the duty cycle of the gate signal (18) (see Col.7, lines 56-62), so the voltage at over 2000 volts is therefore inherent upon adjustment; and said DC/DC converter being a step-up/down converter.

As per claim 7, Henze in view of Okamoto discloses the claimed invention substantially as explained above. Moreover, Okamoto discloses an adaptation for an AC end output via at least stage S comprising an inverter (28-31), operatively coupled the DC/DC converter in stage M, and capable of receiving the local voltage (1) from the DC/DC converter, and inverting the local DC voltage to provide an AC end voltage at the AC end output via at least stage S (see Fig.3) .

As per claims 8 and 9, Henze in view of Okamoto discloses the claimed invention substantially as explained above. In addition, Okamoto discloses a respective electronic ballast (S, S1, S2) being adapted such that the AC end output via step-up transformer T conforms voltage and current requirements ignition (unlighted state) and operation discharge load (B, B1, B2) (lighted state); said respective electronic ballast adapted to provide individually selectable AC end output voltage (H), independently from the others (see Fig.3).

As per claims 10 and 11, Henze in view of Okamoto discloses the claimed invention substantially as explained above. In addition, Okamoto discloses the inverter (28-31) in

at least stage S inverting the DC voltage (1) to a high-frequency AC voltage; said inverter being a square wave inverter (see Fig.9, $V_s(t)$).

As per claims 12, 13 and 30, Henze in view of Okamoto discloses the claimed invention substantially as explained above. In addition, Okamoto discloses the DC to DC converter in stage M being further adapted such that the AC end voltage (H) is individually controllable via control circuit (42), independently of other electronic ballasts of the plurality or the AC end voltage (H) is individually selectable via voltage selector (X or Y) from substantially continuous range of voltages (2-5 in Figs. 4 and 5).

As per claims 14 and 15, Henze in view of Okamoto discloses the claimed invention substantially as explained above. Further, Henze discloses the utility interface (12) comprising a multiple phase transformer (24) coupled the utility input (14) and a rectifier (26) coupled between the multiple phase transformer (24) and the DC distribution output via distribution panel (34); said utility interface (12) being adapted to inherently provide the distribution output at from 600 to 1,000 volts as to eliminate the need for separate utility distribution transformer, depending on the multiphase utility input voltages.

As per claim 16, Henze in view of Okamoto discloses the claimed invention substantially as explained above. In addition, Okamoto discloses a voltage sensor (22) operatively coupled to a distribution bus formed across DC/DC converter output in stage M.

As per claim 18, Henze in view of Okamoto discloses the claimed invention substantially as explained above. In addition, Okamoto discloses in Fig.3 a plurality ultraviolet discharge lamps (B, B1, B2) (see Col.18, lines 52-55) operatively connected the electronic ballasts in stages S, S1, S2.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Henze in view of Okamoto et al as applied to claims 1 and 18 above, and further in view of Ervin et al., Patent No. 6,509,697.

Henze in view of Okamoto discloses the claimed invention substantially as explained above. Henze in view of Akomoto does not disclose a printing system within which the UV discharge lamps are adapted to cure inks. However, this feature is well-known in the inkjet printer art as evidenced by Ervin which discloses in Fig.6 a printing system within which the UV discharge lamp (1) is adapted to cure inks (see Col.16, line 1).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to employ the printing system as taught by Ervin into the Henze in view of Akomoto type system, because it would allow lamps that can be used in devices such as inkjet printers or for producing UV light for industrial applications.

Allowable Subject Matter

Claims 31 and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 20-26 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art fails to disclose means for converting the DC distribution voltage each distributed output into **respective local DC voltage output** (claims 20 and 31).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Vinciarelli, Patent No. 6,788,033; Peng et al., Patent 6,370,050.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Haissa Philogene whose telephone number is (571) 272-1827. The examiner can normally be reached on 6:30 A.M.-6:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MinSun Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

hp

Haissa Philogene
Primary Examiner
A.U. 2828
